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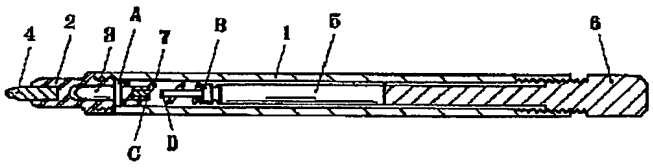
TITLE : INPUT PEN WITH LIGHTING FUNCTION



ABSTRACT : PROBLEM TO BE SOLVED: To make it easy to confirm a color-displayed input surface by providing an input pen main body with a white light emitting diode which lights up the tip part of the input pen.

SOLUTION: A transparent light projection body 2 is engaged threadably with the front part of a cylindrical main body 1 and the white light emitting diode 3 is provided inside it. Further, an input chip 4 which has a curved-surface tip is fixed to the front part of the light projection body 2. A pin type lithium battery 5 is incorporated in the main body 1 and a switch 6 is engaged threadably with the rear part. A coil spring 7 made of an electric conductor is extended between the white light emitting diode 3 and pin type lithium battery 5 and contacts A and B are connected. When the contacts C and D are brought into contact by moving the pin type lithium battery 5 forward by rotating the switch 6, the white light emitting diode 3 illuminates and its light is emitted from the tip through the light projection body 2. Therefore, the position of the input chip 4 on the input surface can easily be confirmed even in a dark place. Further, the light emitting diode 3 is white, so the color-displayed input surface is easily confirmed.

* NOTICES *

CLAIMS

[Claim(s)]
[Claim 1] The input pen with a lighting function carried out [that a lighting function is white light emitting diode and] as the description in the input pen with a lighting function which formed the cell which makes the body of an input pen which prepared the input chip for an input at the tip start the lighting function and the lighting function for illuminating the tip of an input pen.
[Claim 2] The input pen with a lighting function which carries out [having prepared the pin form lithium cell which makes the body of an input pen which prepared the input chip for an input at the tip start the white light emitting diode and the white light emitting diode as a lighting function on a body in the input pen with a lighting function for reflective mold electrochromatic-display panels which prepared the lighting function for illuminating the tip of an input pen, and] as the description.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the input pen with a lighting function which prepared the lighting function for illuminating an input nib edge.
[0002]
[Description of the Prior Art] In the conventional input pen with a lighting function, colored light emitting diodes, such as an incandescent lamp small as a lighting function, and red, blue, were used.
[0003]
[Problem(s) to be Solved by the Invention] However, what used the small incandescent lamp was that in which the endurance of an incandescent lamp and consumption of a cell have the technical problem that it is intense and is not practical. Moreover, the thing using a colored light emitting diode had the technical problem that it could not be used in respect of the balance of a color in the reflective mold electrochromatic display panel which is becoming in use [future] instead of the liquid crystal panel of the transparency mold which used the back light. This invention aims at offering the input pen with a lighting function which cancels the above-mentioned technical problem.
[0004]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention carries out having used white light emitting diode as a lighting function as the 1st summary in the input pen with a lighting function which formed the cell which makes the body of an input pen which prepared the input chip for an input at the tip start the lighting function and the lighting function for illuminating an input nib edge. Moreover, this invention carries out having prepared the pin form lithium cell which makes the body of an input pen which prepared the input chip for an input at the tip start the white light emitting diode and the white light emitting diode as a lighting function on a body in the input pen with a lighting function for reflective mold electrochromatic-display panels which prepared the lighting function for illuminating the tip of an input pen as the 2nd summary.
[0005]
[Example] Drawing 1 explains the input pen with a lighting function of this invention. It is transparent, and the floodlighting object 2 which consists of photoconductivity matter is screwed, and the white light emitting diode 3 which is the light source is formed in the anterior part of the body 1 of the shape of a cylinder with a diameter of 7mm or less inside this floodlighting object 2. Furthermore, the input chip 4 with which the tip was formed in the curved surface at the anterior part of said floodlighting object 2 is fixed. In a body 1, the pin form lithium cell 5 (BR425/2B [made from National] or BR435/2B) is built in, and the switch 6 is further screwed in the posterior part of a body 1. Between said white light emitting diode 3 and the pin form lithium cell 5, the coil spring 7 which consists of an electric conduction object was laid, and Contact A and Contact B are connected. Moreover, the pin form lithium cell 5 was energized by longitudinal direction back by the coil spring 7, and Contact C and Contact D are usually estranged suitably. In addition, in order to control an electrical potential difference and a current

if needed, resistance may be prepared between Contact A and Contact B.
[0006] The input pen with a lighting function explained above rotates a switch 6, advances the pin form lithium cell 5, and is changed into the condition which contacted Contact C and Contact D, and the white light emitting diode 3 was made to turn on, and showed in drawing 2 . Then, the light of the turned-on white light emitting diode 3 is transmitted in the floodlighting object 2, and is generated from a tip. Therefore, the location of the input chip 4 on an input screen can check easily also in a dark location. And since light emitting diode 3 is white, the input screen by which color display was carried out can also be checked easily.
[0007] In addition, the input pen with a lighting function of this invention is not limited to the above-mentioned example, and may form the input chip 14 in the floodlighting object 12 at one at the appearance shown in drawing 3 . In this case, especially the quality of the material of the floodlighting object 12 which can be set, and the input chip 14 has the desirable ingredient of elasticity nature at the transparence of polyethylene, elasticity nylon, etc. because of panel protection.
[0008] Moreover, various means are available also about the attachment means of a white light emitting diode, or a switch.
[0009] The continuous duty of 8 hours was possible for the input pen with a lighting function which prepared the white light emitting diode 3 and the pin mold lithium cell 5 in above-mentioned this invention. However, the input pen with a lighting function which prepared the alkaline cell of AAA in the conventional small incandescent lamp has been used only for 2 hours. That is, it could not but be the thing of extent which can hardly be used in fact in about 2 hours.
[0010] And the input pen with a lighting function of this invention demonstrates the advantage which does not especially have change of coloring by the illumination light, and a bias, either, and was excellent, when it is used for a reflective mold electrochromatic display panel for the white light.
[0011] In addition, as a white light emitting diode, what (Nichia Chemical Industries make) combined the fluorescent substance based on the blue light emitting diode, and especially the thing that combined the fluorescent substance with the input pen with a lighting function of the thin figure contained to a Personal Digital Assistant based on the blue light emitting diode with which a light emitting diode ends by one although what (product made from the Hiyoshi electron) combined the colored light emitting diode in what color was available are desirable. Moreover, especially the pin mold lithium cell used for the power source for electric UKI etc. is desirable.
[0012]
[Effect of the Invention] The input pen with a lighting function of this invention explained above does not have change of a color, and a bias, either, and can check easily the input screen by which color display was carried out also in the dark location, and the effectiveness that a prolonged input can moreover be performed is done so.

[Translation done.]

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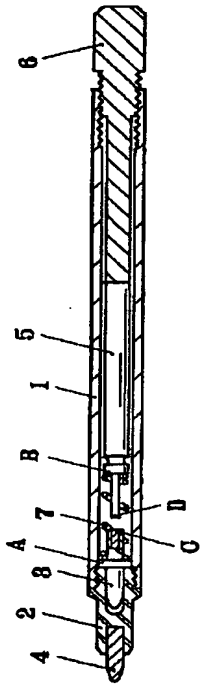
(54)【発明の名称】　照明機能付入力ペン

(57)【要約】

【課題】　暗い場所でもカラー表示された入力面を色の変化、かたよりもなく容易に確認でき、しかも長時間の入力作業を行うことができる照明機能付入力ペンを提供する。

【解決手段】　先端に入力チップ４を設けた入力ペン本体１に、入力ペンの先端を照らすための照明機能と、照明機能を起動させる電池を設ける。しかも、照明機能を白色発光ダイオード３で構成する。



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【特許請求の範囲】

【請求項１】　先端に入力用の入力チップを設けた入力ペン本体に、入力ペンの先端を照らすための照明機能と、照明機能を起動させる電池を設けた照明機能付入力ペンにおいて、照明機能が白色発光ダイオードであることを特徴とする照明機能付入力ペン。

【請求項２】　先端に入力用の入力チップを設けた入力ペン本体に、入力ペンの先端を照らすための照明機能を設けた反射型カラー液晶パネル用の照明機能付入力ペンにおいて、本体に、照明機能としての白色発光ダイオードと、白色発光ダイオードを起動させるビン形リチウム電池を設けたことを特徴とする照明機能付入力ペン。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、入力ペン先端部を照らすための照明機能を設けた照明機能付入力ペンに関するものである。

【０００２】

【従来の技術】従来の照明機能付入力ペンにおいては、照明機能として小型の白熱電球や、赤、青等の有色の発光ダイオードが用いられていた。

【０００３】

【発明が解決しようとする課題】しかし、小型の白熱電球を使用したものは、白熱電球の耐久性や電池の消耗が激しく実用的でないという課題を有するものであった。また、有色の発光ダイオードを用いたものは、バックライトを用いた透過型の液晶パネルに代わってこれからの主流となりつつある反射型カラー液晶パネルには、色のバランスの点で使用できないという課題があった。本発明は、上記課題を解消する照明機能付入力ペンを提供することを目的とするものである。

【０００４】

【課題を解決するための手段】上記目的を達成するために本発明は、先端に入力用の入力チップを設けた入力ペン本体に、入力ペン先端部を照らすための照明機能と、照明機能を起動させる電池を設けた照明機能付入力ペンにおいて、照明機能として白色発光ダイオードを用いたことを第１の要旨とする。また、本発明は、先端に入力用の入力チップを設けた入力ペン本体に、入力ペンの先端を照らすための照明機能を設けた反射型カラー液晶パネル用の照明機能付入力ペンにおいて、本体に、照明機能としての白色発光ダイオードと、白色発光ダイオードを起動させるビン形リチウム電池を設けたことを第２の要旨とする。

【０００５】

【実施例】図１により本発明の照明機能付入力ペンを説明する。直径７ｍｍ以下の円筒状の本体１の前部に、透明でかつ光伝導性物質からなる投光体２を螺合し、該投光体２の内側に光源である白色発光ダイオード３を設ける。更に、前記投光体２の前部に先端が曲面に形成された入力チップ４を固着する。本体１内にはビン形リチウム電池５（Ｎａｔｉｏｎａｌ製　ＢＲ４２５／２Ｂ又はＢＲ４３５／２Ｂ）が内蔵され、更に、本体１の後部にスイッチ６が螺合されている。前記白色発光ダイオード３とビン形リチウム電池５の間には電気伝導体からなるコイルスプリング７が張架され、接点Ａと接点Ｂを接続している。また、コイルスプリング７によりビン形リチウム電池５は長手方向後方に付勢され、通常接点Ｃと接点Ｄを適宜離間している。尚、必要に応じて電圧や電流を制御する為に接点Ａと接点Ｂの間に抵抗を設けても良い。

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【０００６】以上説明した照明機能付入力ペンは、スイッチ６を回転させてビン形リチウム電池５を前進させ、接点Ｃと接点Ｄを接触して白色発光ダイオード３を点灯させ図２に示した状態にする。すると、点灯した白色発光ダイオード３の光は、投光体２を伝わって先端より発生する。従って、暗い場所でも入力面上における入力チップ４の位置が容易に確認できる。しかも、発光ダイオード３が白色のため、カラー表示された入力面も容易に確認できるものである。

【０００７】尚、本発明の照明機能付入力ペンは上記実施例に限定されるものではなく、図３に示した様に、投光体１２に入力チップ１４を一体に形成しても良い。この場合における投光体１２及び入力チップ１４の材質は、パネル保護の為にポリエチレン、軟質ナイロン等の透明で軟質性の材料が特に好ましい。

【０００８】また、白色発光ダイオードの取付手段やスイッチについても種々の手段が利用可能である。

【０００９】上記した本発明における白色発光ダイオード３とビン型リチウム電池５を設けた照明機能付入力ペンは、８時間の連続使用が可能であった。しかし、従来の小型白熱電球に単４のアルカリ電池を設けた照明機能付入力ペンは、２時間しか使用できなかった。つまり、２時間程度では実際にはほとんど使用できない程度のものでしかなかった。

【００１０】しかも、本発明の照明機能付入力ペンは、白色光のために反射型カラー液晶パネルに使用した場合に、照明光による発色の変化、かたよりもなく特に優れた利点を発揮するものである。

【００１１】尚、白色発光ダイオードとしては、青色発光ダイオードをベースに蛍光体を組み合わせた（日亜化学工業製）ものや、有色発光ダイオードを何色か組み合わせた（日吉電子製）ものが利用可能であるが、携帯情報端末に収納する細身の照明機能付入力ペンには、発光ダイオードが１つですむ青色発光ダイオードをベースに蛍光体を組み合わせたものが特に好ましい。また、その電源には電気ウキ用等に用いられるビン型リチウム電池が特に好ましい。

【００１２】

【発明の効果】以上説明した本発明の照明機能付入力ペ

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ンは、暗い場所でもカラー表示された入力面を色の変化、かたよりもなく容易に確認でき、しかも長時間の入力作業を行うことができる効果が奏せられるものである。

【図面の簡単な説明】

【図１】本発明の照明機能付入力ペンを示す断面図である。

【図２】本発明の照明機能付入力ペンを点灯させた状態を示す断面図である。

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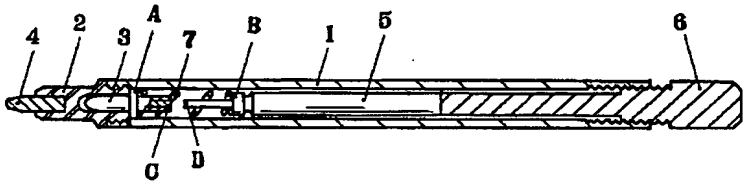
＊【図３】本発明の他の照明機能付入力ペンを示す断面図である。

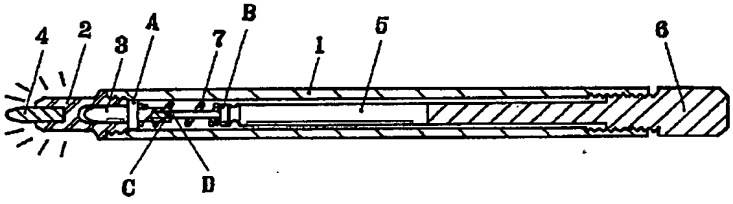
【符号の説明】

１　本体
３　白色発光ダイオード
４　入力チップ
５　ピン形リチウム電池
１４　入力チップ

【図１】



【図２】



【図３】